

## NEW GENERATION OF PHOTOVOLTAIC MODULES

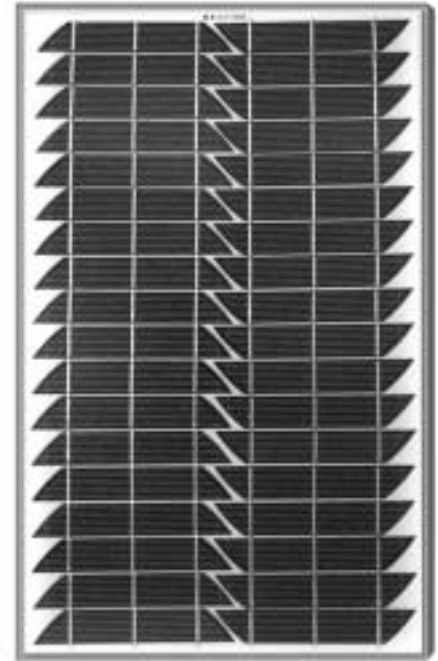
The new photovoltaic modules **H245** have been designed by Helios Technology for rural electrification, data collecting, telecommunications and special applications. Thanks to their high versatility, such modules are very appreciated and therefore they are used for photovoltaic systems in either the developing countries or the European market. Their performance and reliability have been recently improved thanks to the introduction of high efficiency I-Max<sup>®</sup> monocrystalline cells.

At the typical battery operating voltage (12-13 Volts) the I-Max<sup>®</sup> technology, developed by Helios for its high-efficiency modules range, allows a remarkable increase of the current output (about 10-17%), differently from traditional modules. Such feature makes these modules particularly suited for systems with batteries and very attractive for low-budget and special applications.

These modules are made with 36 high-efficiency I-Max<sup>®</sup> 165x24mm monocrystalline cells and they have been designed to feed power under the toughest environmental and operating conditions.

Every single cell and module is tested and their quality is checked several times during the manufacturing process so that their typical average lifetime of 30 years can be assured, as already proven by modules manufactured by Helios in the past.

Easy and practical interconnections allow any voltage and configuration, while a properly-designed anodised aluminium frame makes these modules safe, easy and quick to install in many situations.



**H245/20W**

### Guaranteed power $\geq$ 80% 25 years

Relative humidity up to 100%

Dimensions 524 x 325 x 34  $\pm$ 1mm

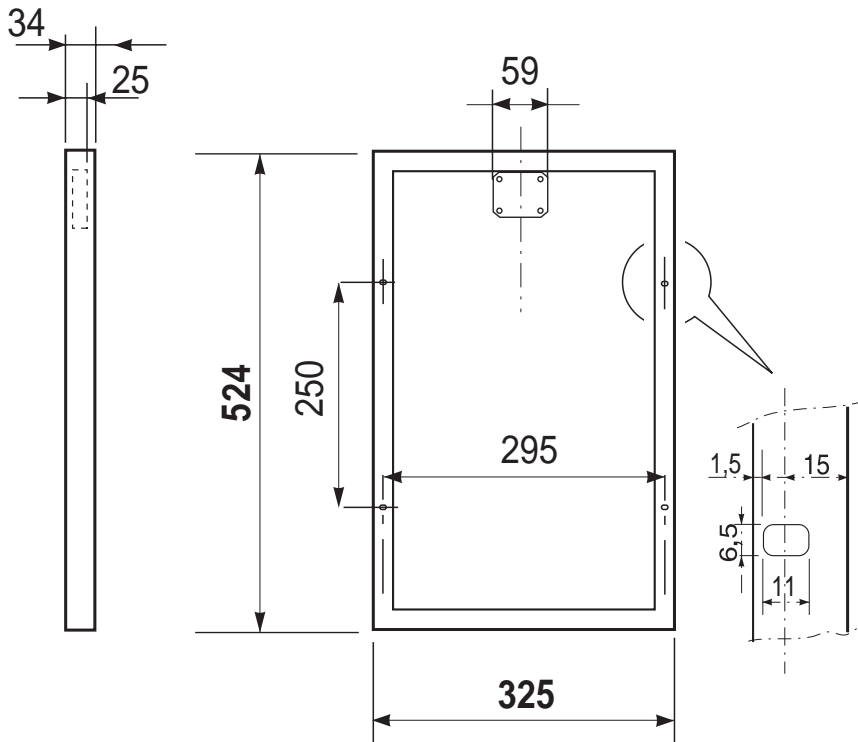
Weight Kg. 2.35

Tolerance on technical data:  $\pm$ 10%



## ELECTRICAL SPECIFICATIONS ( at 100mW/cm<sup>2</sup>, 25°C, AM 1.5 ) MODULE H245

Peak power (Wp)	Watts	20
Short circuit current (Isc)	Amps	1.36
Open circuit voltage (Voc)	Volts	20.5
Voltage at maximum power point (Vmp)	Volts	16.5
Current at maximum power point (Imp)	Amps	1.21
<b>Typical current at the battery operating voltage (12.5V)</b>	<b>Amps</b>	<b>1.27</b>
NOCT (Nominal operating cell temperature)	°C	43 $\pm$ 2
Voltage variation with temperature ( $\beta$ )	mV/°C	-90
Wind loading or surface pressure	N/m <sup>2</sup> 2400 (200 km/h equiv.)	
Hailstone impact resistance	24mm	at 80 km/h
Operating and storage temperature	°C	from -40 to +95
Maximum system voltage	Volts	600



## MODULE PHYSICAL FEATURES

Helios modules are made using the most advanced production technologies, thanks to both the wide experience gained by Helios in the PV field and the suggestions coming from skilled installers.

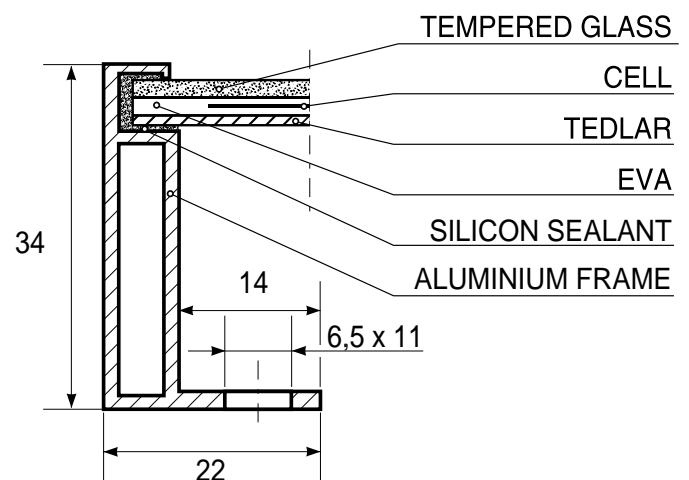
The result is a frame with 4 slotted holes, practical and compact, which allows a quick and easy installation of all Helios modules.

The corner/frame assembly system devised by Helios in 1982, proved its high efficiency being rugged and allowing a perfect electrical continuity between the frame components.

Tolerance  $\pm 1\text{mm}$

## MODULE CROSS SECTION

The cells lay in a permanent lamination between sheets of ethylene vinyl acetate (EVA), tempered glass and white Tedlar which offers an ideal weatherproof protection against moisture and saline corrosion. The tempered glass, featuring a high transparency to both direct and diffuse light, is fixed on the frame by silicone sealant providing an efficient protection against mechanical and environmental stress.



## JUNCTION BOX

One compact, weatherproof junction box is equipped with appropriate connection terminals and gasket to allow a proper insulation of the cable with respect to the outside.

Its overall dimensions laying inside the frame thickness allows the module to be installed requiring the minimum needed space.

Such junction box was conceived by Helios just to support the installer needing.



Helios Technology reserves the right to change the technical features without notice.